International Comparison of Media Coverage on the Fukushima Crisis: A Comparative Content Analysis of News Media Coverage in Several Countries

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Abstract

The objective of this study is to examine how the international news media has covered the nuclear disaster in Japan and determine the differences in news framing of different international newspapers. Four theories; framing analysis, attribution theory, situational crisis communication theory (SCCT), and the cultural value system of Schwartz have been applied in this research, and eight hypotheses have been deduced. A quantitative content analysis approach has been taken in order to frame and analyze several international news articles published in the newspapers of Singapore, Germany, USA, UK, Japan and India addressing Fukushima Crisis. Out of the eight hypotheses deduced for this research, three were confirmed with restrictions, two were partially confirmed while three hypotheses were rejected. From the eight hypotheses that have been tested, three are confirmed with restrictions, two partially confirmed though also with restrictions, and three rejected, in which one of them under restriction. The study concludes that Schwartz's cultural values are not solely the factor that perhaps could explain the influence within the media system, regarding the difference of media coverage in each country or culture.

Keywords: Framing, Fukushima, crisis communication, Schwartz cultural values.

1. Introduction

In 2011, the earthquake and tsunami in Japan caused one of the biggest nuclear crises this world has ever faced. The power systems of Fukushima Daiichi nuclear station were immediately knocked down after the massive earthquake and ferocious Tsunami waves hitting Japan. At that time eleven atomic reactors at four different plants were operating, out of which eight units reached to shutdown position within four days. The other three reactors lost power and started meltdown resulting in hydrogen explosions and radioactive emissions from the Fukushima plant, which ultimately forced the local communities to evacuate the area. The accident was rated 7 on the INES scale (Holt, 2012: 1).

The severity of this nuclear disaster can be compared with one of the worst nuclear incidents in history which took place at Chernobyl in former Soviet Union and raised serious questions concerning nuclear security and safety at different plants operating worldwide.

Moreover, the reputation of Japan's government and power plant's operator (Tepco) has suffered significantly within this period. International media have discussed their response to the nuclear disaster at Fukushima as well as they have criticized core elements of its communication strategy. The formal organization of the government's and Tepco's communication was slow and poorly coordinated while the flow of information was not transparent andaccurate (Yilmaz, 2011).

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Therefore, crisis communication carried out in case of Fukushima Daiichi accident can damage the reputation and such flaws in communication can affect how stakeholders interact with the organization (Barton, 2001; Dowling, 2002).

When Fukushima Daiichi disaster happened, the media attention was paid to the actions of Japan government and TEPCO in terms of their immediate response strategy. The media play a crucial role in how distant extraordinary events are constructed, narrated and politically responded (Pantti et al. 2012, Cottle, 2012).

Hence, Fukushima crisis coverage in the media was accompanied by stories about people who had been in danger and buildings which had been damaged. Therefore, this study aims to examine how the international news media covered nuclear disaster in Japan and what were the differences in news framing of different newspapers in these countries, which will contribute in the future development of the crisis communication research.

2. Materials and methods

The research is designed to examine cross-cultural framing in the Fukushima crisis case in several chosen country newspapers: Singapore, Germany, USA, UK, Japan and India. For this purpose a quantitative content analysis has been undertaken, with human coding (instead of computer coding) chosen as content analysis methodology.

Aligned to the fact that this research is undertaking several categories from Entman, content analysis is defined as: "Summarizing, quantitative analysis of messages that rely on the scientific method, including attention to objectify/intersubjectivity, a priori design, reliability, validity, generalizability, replicability, and hypothesis testing. It is not limited as to the type of messages that may be analyzed, nor as to the types of constructs that might be measured (Neuendorf, 2002: 10; Neuendorf, Skalski, 2010).

Entman's theoretical framework with four features is app lied to this research, rooting from the codebook building which is divided into sections of: (a) Problem definition (b) Treatment Recommendation (c) Causal Interpretation, and (d) Moral Evaluation. This framework was built solely to answer the empirical questions which follow framing credibility, as stated by Van Gorp, 2005 (in Matthes,Kohring, 2008), "It is extremely difficult to neutralize the impact of the researcher in framing research." By capturing these four dimensions of Entman applied in Matthes and Kohring's framework approach, it is more vividto view the research object, in order to avoid subjectification from the researcher and to avoid the research loophole itself. The reason is (a) Coders are not informed regarding the four dimensions of the coding before the research starts, nor they are informed about the samples, thus it is less subjective. (b) The four dimensions are scrutinized separately, thus according to holistic frames, each data extracted is more reliable and less inter-subjective to oneanother (Matthes, Kohring, 2008).

The four dimensions of Entman are therefore integrated into the codebook to analyze the cross-cultural framing of Fukushima crisis, and to answer the following research questions:

- How did the international media news media frame the Fukushima crisis from March to June 2011?

 - What are the differences in media coverage between different countries regarding the Fukushima crisis? This refers to the following aspects of the media coverage:

(a) Problem definition (b) Treatment Recommendation (c) Causal Interpretation, and (d) Moral Evaluation.

Regarding Schwartz's cultural values that had been used as a theoretical reference in this research, seven hypotheses had been built:

H1: Media coverage in countries with cultural emphasis on Autonomy is more likely to attribute the causes of the Fukushima crisis to the internal causes (Tepco) than countries with cultural emphasis on Embeddedness (external).

H2: Media coverage in countries with cultural emphasis on Autonomy attributes responsibility for the Fukushima crisis more often to Tepco/Japanese Government than countries with cultural emphasis on Embeddedness.

H2.1: If Tepco is blamed for the crisis than the organization as a whole will be emphasized in embedded cultures and individual persons (CEO, employees) will be emphasized in autonomous cultures.

H3: Media coverage in countries with cultural emphasis on Autonomy refers less likely to (high) consensus information than countries with cultural emphasis onEmbeddedness.

H4:Media coverage in countries with cultural emphasis on Hierarchy is less likely to refer to negative evaluations of reputation and crisis response of Tepco than countries with cultural emphasis on Egalitarianism.

H5: Media coverage in countries with cultural emphasis on Egalitarianism is more likely to emphasize organizations' (Tepco) compassion with crisis stakeholders than in countries with cultural emphasis on Hierarchy.

H6: Media coverage in countries with cultural emphasis on Harmony is more likely to refer to risks of nuclear energy and less likely to refer to benefits of nuclear energy than countries with cultural emphasis on Mastery.

H7: Media coverage in countries with cultural emphasis on Harmony is more likely to refer to (high) crisis severity than countries with cultural emphasis on Mastery.

The first hypothesis (H1) was formulated with the argumentation that countries with the autonomous cultural background will emphasize more attribution of causes to an internal cause, which is in the case of Fukushima crisis framing, Tepco. Contrariwise, countries with the cultural emphasis of embeddedness will emphasize more on external causes. This statement is also supported by the principal of FAE, with certain exceptions. The reason is, according to the research undertaken by Schwartz (Schwartz, 1999) not all countries which are considered autonomous culture are western countries. In the chart written by Schwartz, there are several Asian countries that could be closely considered as autonomous rather than embedded culture based. These countries are for instance Thailand, South Korea, and most importantly Japan, which is one of the country samples scrutinized in this research. Nevertheless, the empirical findings will later on discuss further regarding the matter.

The second set of the hypotheses (H.2 and H.2.1) was built on the same concept with H1, which is trying to answer the tendency of media coverage regarding attribution of responsibility. H.2.1 differs further regarding the matter with the attempt to scrutinize the tendency of attribution toward persona or the company as a whole.

The third hypothesis (H3) is based on the same principle as the first and second hypothesis, with the base principal of Kelley's covariation, in specific consensus, taken into account of the formulation building.

The next set of Schwartz's cultural value categorization is formulated in the next two hypotheses (H4 and H5) which are egalitarianism vs. hierarchy. H4 deals with negative evaluations of crisis response, while H5 deals with compassion.

Mastery countries tend to exploit natural resources, since the basic trait is competence and ambition, while contrariwise harmony countries are trying to take nature as it is and nurture it. Consequently, in accordance with this principle, H6 was formulated by stating that harmony based countries are more likely to be transparent to refer to the risk of nuclear energy. Thus, the same principle follows, regarding media coverage. This formulation is then built further and incorporated in H7, which stated that the media coverage in harmony based countries is more likely to refer to (high) crisis severity than mastery basedcountries (Schwartz, 1999).

3. Discussion

Framing. Framing is the kind of "scattered conceptualization" and that it "essentially involves selection and salience". In order to completely understand this definition, some of its aspects need to be clarified. Firstly, to make a piece of information salient means to make it more noticeable, meaningful, or memorable to audiences. An increase in salience enhances the probability that receivers will perceive the information, discern meaning and thus process it, and store it in memory (Fiske, Taylor, 1991). "[F]rames, then, define problems – determine what a causal agent is doing with what costs and benefits, usually measured in terms of common cultural values; diagnose causes – identify the forces creating the problem; make moral judgments – evaluate causal agents and their effects; and suggest remedies- offer and justify treatments for the problems and predict the likely effects." These four framing functions can be contained in one single sentence of an article, while another sentence can have none of them and it is not necessary the concrete article to include themall (Entman, 1993).

Problem Definition. The problem definition determines what aparticular actor – the "Causal agent" – is doing with what cost and what benefits". This frame element includes both thecentralissueunderinvestigationandtherelevantactors.(Entman, 1993).These two define the central problem of a news story. In our case the problem definition is connected with the

determination of the main topic which a concrete article deals with and the important actors (individuals, institutions or organizations) that play a significant role in the crisis situation (Matthes, Kohring, 2008).

Causal Interpretation. The second frame element diagnoses what are the causes for occurring of a certain problem, in the particular case – for the crisis. A causal interpretation is an attribution of failure or success regarding a specificoutcome. (Matthes, Kohring, 2008).

Causal Attribution theories. "Attribution theory examines what information is gathered and how it is combined to form a causal judgment" (Fiske, Taylor, 1991).

Individualshave a fundamental need to reduce uncertainty with regard to perceptions of their environment. By trying to attribute certain causes to observed events or behavior, people feel more confident about what they observe. He further developed this theory to two main ideas about how individuals attribute behaviors:

1) When individuals explain the behavior of others, they tend to look for enduring internal attributions, like characteristics ofpeople.

2) However, when individuals try to explain their own behavior, they tend to make external attributions, such as situational orenvironmental (Heider, 1958).

People receive information from multiple observations, and act like scientists by trying to perceive the covariationof an observed effect and its causes, which can vary from certain persons, to entities, or situational circumstances. Upon deciding the causes of an observed effect, people take into account three types of information that influence their judgments; consensus, distinctiveness and consistency (Kelley, 1967).

The Fundamental Attribution Error (FAE). One of the biggest observed mediating factors in causal attribution is the correspondence bias, namely the preference for explanations of internal attributes instead of external (Gilbert, Malone, 1995). Sometimes correspondence bias results in the fundamental attribution error (FAE; Ross, 1977). "People tend to think that others are as they act, and the intellectual roots of this tendency are so deep in Western thought"(Gilbert, Malone,1995: 24). East Asians are less likely to show correspondence bias in comparison with Westerncultures (Choi et al., 1999).

Moral Evaluation. The moral evaluation presents the attribution of the responsibility frame or who might have moral accountability for an incident and its outcomes (Matthes, Kohring, 2008).

An evaluation can be positive, negative, or neutral and can refer to different objects. Attribution of responsibility requires a specific combination of actors: Actor A (sender of attribution) makes judgments about whether a certain Actor B (receiver of responsibility) is responsible for a specific object (object of attribution). The sender of attribution is an actor who holds someone responsible for something and respectively, the receiver is an actor who is held responsible. The sender and the receiver can be an individual, groups, organizations, as well as institutions (Heider, 1958).

Treatment Recommendation. Frames suggest remedies, in such a way that "offer and justify treatments for the problems and predict the likely effects" (Entman, 1993). Treatment recommendations are all types of guidance prescriptions and pieces of advice, given in order to protect relevant actors and to minimize the harm of the current crisis, as well as to prevent the occurring of another comparable crisis. These recommendations can include a call for or against a certain action (Matthes, Kohring, 2008), as in the particular case they are identified as being social, medial, financial, organizational or technological type.

Situational Crisis Communication Theory (SCCT). According to SCCT, in organizational crises stakeholders make judgments about whether the organization is responsible for the crisis and its outcomes. The assumption is, the higher the attribution of an organization's responsibility, the greater the damage of its reputation (Coombs, Holladay, 2004). The dimension of personal control/locus indicates if an event's cause is something about the actor and controllable by that actor, therefore it reflects the intentionality of an act. Respectively, external control states to what extent an event is controllable by other actors, while stability refers to whether an event occurs frequently or not. Organizational crisis responsibility is received by stakeholders as strongest when there is perceived personal control over the crisis, there is low external control and the cause is stable, therefore the organization has a history of crises (Coombs, Holladay, 2004).

Reputation in crisis situations can be positively influenced by selecting the appropriate crisis response strategy depending on the situations. However, SCCT is by no means a flawless remedy

for organizational reputation. Crises are highly complex situations which cannot be reduced to restrict categories, plus since different stakeholders can be involved differently in an organization (for instance public or shareholders) the degree of perceived responsibility and attribution depends on these different views of a crisis (Coombs, 2007).

Schwartz's Cultural Values. Values are "conceptions of the desirable that guide the way social actors (e.g. organizational leaders, policy-makers, individual persons) select actions, evaluate people and events, and explain their actions and evaluations". Therefore values appeared to be trans- situational criteria or goals, which are ordered by importance as guiding principles in life (Schwartz, 1999).

These cultural values are the bases for specific norms that tell people what is appropriate in various situations. The value priorities that characterize a society by aggregating the value priorities of individuals. By validating data from 49 nations from around the world, he identified seven types of values, structured along three polar dimensions: Conservatism versus Intellectual and Affective Autonomy; Hierarchy versus Egalitarianism; and Mastery versus Harmony. The cultures can be compared based on these types of values by considering three issues that confront all societies.

The first issue is to define the nature of the relation between the individual and the group and includes Conservatism, Intellectual and Affective Autonomy. Conservatism (or Embeddedness) describes cultures in which the person is viewed as an entity who is embedded in the collectivity and finds meaning in life largely through social relationships, through identifying with the group and participating in its shared way of life (Schwartz, 1999).

The opposite pole of this dimension – Autonomy – describes cultures in which the person is viewed as an autonomous, bounded entity who finds meaning in his or her own uniqueness, who seeks to express his or her own internal attributes (preferences, traits, feelings, motives) and is encouraged to do so. There are two types of Autonomy, as an Intellectual Autonomy refers to ideas and thought, and the Affective Autonomy – to feelings andemotions.

The second issue is to guarantee responsible behavior that will preserve the social fabric, meaning that the people have to consider the welfare of others, coordinate with them, and thereby manage the unavoidable social interdependencies. This issue includes the values Hierarchy and Egalitarianism. Hierarchy is based on power differences, relying on hierarchical systems of ascribed roles to ensure socially responsible behavior. The cultural emphasis here is on the legitimacy of an unequal distribution of power, roles and resources (Schwartz, 1999). The alternative pole – Egalitarianism can be described as "cultural emphasis on the transcendence of selfish interests in favor of a voluntary commitment to promoting the welfare of others (equality, social justice, freedom, responsibility, honesty)."

The last issue is the relation of humankind to the natural and social world, as Mastery and harmony is differentiated. Under Mastery one should understand the "cultural emphasis on getting ahead through active self-assertion (ambition, success, daring, competence)". Harmony means accepting the world as it is, trying to fit in rather than to change or exploit it (Schwartz, 1999).

4. Results

H1: In order to find out the relationship between countries and causes the cross-tabs analysis was conducted for every variable. For this procedure independent variable "countries" was recoded into two groups i.eone into Autonomy – and other as Embeddedness-based (conservative) types of culture. The dependent variables which are needed for testing of hypothesis do not have to be recoded.

In the case of causes of Fukushima crisis connected with Tepco the cross-tab analysis of cultureemphasis on likelihood to blame this electric power company, this part of the hypothesis was rejected: countries grouped as Autonomy-based were likely to attribute to internal causes (3.4 % of the cases) as Conservative countries (3.3 % of the cases). Moreover, Kreskas's Lambda had a value of 0, consequently, it means that there is no relationship between the variables as well as the Pearson Chi-square had a value of 0.902 (>0.05) so it was not significant, the statistical options of Phi, Cramer's V and contingency coefficient, which measures the association between the country and the causes, had the value of 0.013 that showed weak effect betweenvariables.

The same situation can be seen in relating to technical causes (external), where following to the hypothesis the assumption about the tendency of Conservative countries to more likely referring to external causes than Autonomy-based countries was not confirmed. After the

conducting of cross-tab operation it has become obvious that both countries with a cultural emphasis on Autonomy and Conservative countries referred to technical problems equally (7.2 % and 8.2 % of the cases respectively). Additionally, the value of Chi-square was 0.516 (>0.05) so the connection of variables cannot be considered as significant. The Lambda had again a value of 0 and Phi's, Cramer's V and the contingency coefficient's values of 0 indicates the absence of a relationship.

However, the remaining part of the hypothesis concerning natural problems (external causes) was confirmed. The assumption that embedded countries attribute to external causes of nuclear crisis often than autonomous countries is proved. Cross-tab analysis demonstrates that 47.7 % of cases from conservative countries referred to natural causes while only 39 % of autonomous countries cases attributed to them. Furthermore, Chi-square had a value of 0.004 (< 0.05) that is why variables have a strong relationship. Nevertheless, the meaning of Kruskal's Lambda had a value of 0 while Phi, Cramer's V and contingency coefficient had a value of 0.85 that meant moderate to strong effect between variables. Thereby, with a purpose to check getting data another test was conducted only for this variable in regard tocountries.

Table 1. Cultural emphasis and reference to internal and external causes: effects of cultural emphasis on likelihood with ref. of Tepco

			Tepco's causes		Natural causes		Technical causes
	Not mentioned	Individual level	Organizational level	Not mentioned	Affirmation	Not mentioned	Mentioned
Autonomy	714 (96.6 %)	20 (2.7 %)	5 (0.7 %)	451 (61 %)	288 (39%)	686 (92.8%)	53 (7.2 %)
Embeddness	412 (96.7%)	12 (2.8 %)	2 (0.5 %)	223 (52.3%)	203 (47.7%)	391 (91.8%)	35 (8.2%)
		Chi^2=0.902		Chi^2=0.004		Chi^2=0.516	

Independent T-Test was also conducted to compare the means of the autonomous and conservative countries in a sense of natural causes. The results showed that the articles from the countries with embedded cultures refer more often to natural causes (M=0.48).

In comparison to the countries which emphasis on autonomous values (M=0.39), despite the fact that the articles that analyzed from the second ones were less (n=426) than those from the first group (n=739). Moreover, the t-test was significant as well (0.004).

Table 2. T-test between Autonomous/Conservative Countries and Natural causes

Countries	N	Mean	Std. Deviation	St. Error Mean
Autonomy	739	0.39	0.488	0.18
Embededdness	426	0.48	0.500	0.24

H2: Out of 1165 total number of cases, the Japanese government was blamed just 23times for the crisis while Tepco was attributed as a cause of Fukushima disaster 39 times in the coverage of newspapers analyzed.

Table 3. Crosstab on Newspapers' attribution to Tepco between autonomous and embedded cultures

Newspapers" attribution to Tepco	Autonomous Cultures N=742	Embedded Cultures N=427	Total N=1165
No. attribution	714 (96.6 %)	412 (96.7 %)	1126 (96.7 %)
Attribution	25 (4.4 %)	14 (3.3 %)	39 (3.3 %)

The above table shows that there are a lot of articles without any attribution of responsibility for Tepco. The results for applied Chi-square has shown that there is truly an insignificant difference between countries with cultural emphasis on Autonomy and those with cultural emphasis on Embeddedness (P=2). Due to such a weak value for Chi-square, T-test was not conducted. Therefore, the assumption that media coverage in countries having cultural emphasis on autonomy is more likely to attribute the responsibility for Fukushima crisis to Tepco seems to be falsified.

Table 4. Crosstab on Newspapers' attribution to Japan between autonomous and embedded cultures

Newspapers" attribution to Tepco	Autonomous Cultures N=742	Embedded Cultures N=427	Total N=1165
No. attribution	716 (96.9 %)	426 (100 %)	1142 (98.0 %)
Attribution	23 (3.1 %)	0 (0 %)	23 (2.0 %)

While analyzing the results we found that coverage of newspapers in countries having autonomous cultures actually held the Japanese government responsible for the Fukushima crisis, while in this case, not a single newspaper coverage in embedded cultures attributes responsibility of Fukushima crisis to the Japanese government. Therefore, this part of the hypothesis can beaccepted.

In order to further confirm this hypothesis t-test was also run in order to check the cultural preferences of Embeddedness than to countries with cultural acquaintances towards autonomy.

Table 5. Mean difference between autonomous and embeddedness cultures on newspapers" attribution to Japanese government for Fukushima crisis

Countries	N	Mean	Std. Deviation	St. Error Mean
Autonomy	739	0.03	0.174	0.006
Embedded	426	0.00	0.000	0.000

The hypothesis shows interesting and significant results (0.000) as we came to a conclusion that in the limited number of cases in which Japanese government held responsible for the crisis, only autonomous countries held it responsible for the crisis at Fukushima power plant. Perhaps the reason for it most of the blame game was done from within Japan. Therefore this hypothesis has beenaccepted.

H2.1: To test this hypothesis crosstab was run again.

Table 6. Cross tabulation on Newspapers" level of attribution to Tepco between autonomous and embeddedness cultures

Level of blaming of Tepco	Autonomous Cultures N=25	Embedded Cultures N=14	Total N=39
Organizational	5 (20.0 %)	2 (14.7 %)	7 (28.6 %)
Individual	20 (80 %)	12 (85.7 %)	32 (82.1 %)

The above table shows that our assumption in the form of hypothesis has proved to be wrong as we came to a conclusion that in this case coverage of newspaper in embedded cultures were blaming Tepco on an individual level while autonomous cultures were more likely to attribute the responsibility of Fukushima crisis to Tepco on an individual level. Therefore, this hypothesis is also rejected. But, due to a limited number of cases, the given results do not provide a sufficient basis for further elaboration and interpretation.

H3: According to Schwartz's map of cultural values, the countries in this research that can be identified as conservative/embedded, are Singapore and to a lesser extent India, while countries with an emphasis on Autonomy are UK, USA, Japan and Germany. This research has applied Kelley's

covariation principle (Kelly, 1973) dimensions of information: consensus (Do other nuclear power companies have similar crises?), distinctiveness (Does Tepco have other crises apart from this nuclear crisis?), and consistency (Has Tepco had similar nuclear crises in the past?). In this hypothesis media coverage in UK, USA, Japan and Germany is expected to more likely focus on consensus, consistency and distinctiveness information than media coverage in Singapore and India.

The respective dependent variables in the codebook that operationalize this hypothesis did not need to be recoded. The independent variable of the country was recoded into two groups "Autonomy" and "Embeddedness", both of which included their respective countries. Cross-tabs analysis was conducted three times for all variables (consensus, distinctiveness, consistency) in relation to the countries, in order to display the relationship of the two variables in tabular form.

In one of the cases, the cross-tabulation of the effect of cultural emphasis on the likelihood of consensus information, the hypothesis was almost supported by the data: Countries grouped together as Autonomous were less likely to refer to high consensus information (11.9 % of the cases) than Conservative countries (14.3 %). Although the Kruskal's Lambda had a value of 0.003 (almost 0), therefore it implied that there was no relationship between the variables and the Pearson Chi-square had a value of 0.66 (> 0.05) so it was not significant, the statistical options of Phi, Cramer's V and contingency coefficient, which measures the association between the country and the information, had the value of 0.68, which was really close to 0.7, indicating a moderate to strong effect between the variables. Therefore, an alternative test was also conducted only for this variable in connection with the country variable.

Table 7. Cultural emphasis and reference to consensus information: Effects of cultural emphasis on the likelihood of reference to consensus, distinctiveness or consistency information (dependent variable)

N= 1165	Consensus			Distinctiveness			Consistency		
	Not Mentioned	Low	High	Not Mentioned	Low	High	Not Mentioned	Low	High
Autonomy	637 (86.2 %)	14 (1.9 %)	88 (11.9 %)	720 (97.4 %)	8 (1.1 %)	11 (1.5 %)	733 (99.3 %)	1 (0.1 %)	4 (0.5 %)
Embeddedness	349 (81.9 %)	16 (3.8 %)	61 (14.3 %)	418 (98.1 %)	3 (0.7 %)	5 (1.2 %)	425 (99.8 %)	0 (0 %)	1 (0.2 %)
	Chi² = 0.066			Chi² = 0.734			Chi² = 0.555		

The T-Test showed that countries with a cultural emphasis on autonomy are more likely to refer to consensus information (M= 0.010) than countries with cultural emphasis on conservatism (M= 0). Moreover, the T-Test for equality of means was not significant, so the hypothesis that autonomous countries are less likely to refer to consensus information than conservative/embedded countries is rejected.

Tab. 8. Mean of consistency information reference: Autonomous and Embedded countries

	Consistency			
	N	Mean	Levene's Test	T-Test for Mean Equality
Autonomy	738	0.010		t = 0.920
Embeddedness	426	0	0.066 > 0.05	p= 0.358 > 0.05

In the cases of distinctiveness and consistency, the hypothesis was rejected by the empirical data. The Chi-square value for the cross-tabs of countries in connection with distinctiveness information was 7.34, a value not significant at all (> 0.05) and the Lambda had a value of 0, which means that one variable in no way predicts the other. Moreover, the Phi, Cramer's V and the contingency coefficient had the values of 0.23, which indicate a weak relationship between the two variables (0–0.3). So, the empirical data support the rejection of the hypothesis that countries with cultural emphasis on Autonomy refer less likely to (high) distinctiveness information than

countries with cultural emphasis on Conservatism/Embeddedness.

Finally, The Pearson Chi-square for countries in connection with consistency information had a value of 5.55, which again means it is not significant at all (> 0.05). The Lambda had again a value of 0 and Phi's, Cramer's V and the contingency coefficient's values of 0.32 indicates a moderate relationship. Yet, the effect is too weak, in combination with the rest of the empirical data, so the assumption that countries with cultural emphasis on Autonomy refer more likely to (high) distinctiveness information than countries with cultural emphasis on Conservatism/Embeddedness is also rejected, so the whole hypothesis cannot be confirmed by empirical data.

One possible explanation may lie in the absence of any reference to consensus information from either country group (80.3 % for the autonomous countries, 87 % for the embedded ones). It may be the case that due to the severity and the proximity of the crisis in the embedded countries, the press focused on pressing issues, such as the condition of the survivors or the spread/control of the situation rather than referring to similar crises in Tepco or other nuclear companies.

East Asian cultures, like India and Singapore, the Conservative group of countries, are less likely to show correspondence bias in comparison with Western cultures (Choi et al., 1999).

H4: For the aim of the analysis the countries were united in 2 groups – egalitarian and hierarchical countries, as the first one embraced 338 and the second one 831 articles, respectively 28.9 % and 71.1 % of the whole sample.

As the unfavorable assessment of the crises response corresponding to these variables to be outlined, the number of the negative evaluations was counted and a new variable – Negative Crisis Response was formed. This new variable takes values from 0 to 5, as 0 means that none of the abovementioned variables had a negative appraisal and 5 – which they all had. Presuming that a particular country evaluated Tepco's reputation negatively when in the articles is mentioned one or more than one unfavorably assessed variables (e.g. 1, 2, 3, 4, or 5), two further groups were formed called „no negative evaluation" and „negative evaluations", as the first group included the cases when no unfavorable assessment was given and the second one – when negative evaluations or one or more of the variables werementioned.

The result of running a crosstab with the variables Egalitarian/Hierarchical Countries and Negative Crisis Response showed that most of the analyzed articles did not tend to assign unfavorable assessment of the Tepco's crisis response or they didn't comment it at all (93.5 %), as only 6.5 % gave a negative evaluation of it.

Table 9. Crosstab between Egalitarian/Hierarchical Countries and Negative Crisis Response

5.7 % of the newspapers of the countries pointed as hierarchical – USA, India, Japan, and Singapore – appraised the organization's reputation negatively in comparison to 8.6 % of the egalitarian ones – Germany and UK. Drawing a conclusion from these data, the expectations were confirmed.	Negative Response		Total
	No negative evaluation	Negative evaluation	
Egalitarian Countries	309 (91.4 %)	29 (8.6 %)	338 (100 %)
Hierarchical Countries	784 (94.3 %)	47 (5.7 %)	831 (100 %)
Total	1093 (93.5 %)	76 (6.5 %)	1169 (100 %)

It is interesting to note that when a crosstab with the different countries and not with two groups of them is run, the expectations were again confirmed for all of the countries, except for Japan. Japan as hierarchical culture was expected to be less negative in the evaluation of the organization's crisis response, but the results show that the percentage of unfavorable appraisals in the Japanese articles was higher than those of the other hierarchical countries and also higher than one of the egalitarian ones – UK. The reason behind this could be that the accident has happened

in Japan, so it is more affected by the crisis than the other countries and these results in more judgmental attitude towards the actors who were involved in it.

Table 10. T-test between Egalitarian/Hierarchical Countries and Negative Crisis Response

	Countries	N	Mean	Std. Deviation	St. Error Mean
Negative	Egalitarian	338	0.0858	0.28048	0.01526
Response	Hierarchical	831	0.0566	0.23114	0.00802

The significance index of the Person Chi-square had a value of 0.066, which indicates that the relationship between the two variables is not so significant. The same was valid for the Likelihood Ration (0.073) and the Linear-by-Linear Association (0.066). There were no cells that have expected count less than 5 as the minimum expected count was 21.97. This means a reduction in the test power of the Chi-Square test is not to beexpected.

Cramer's V had a low value (0.054) which means that there is a weak association between the type of country and whether they assessed the organization's response negatively. However, the coefficient was not significant (0.066). It was the same by Phi and Contingency Coefficient.

The crosstab didn't give a clear result, that's why an independent t-test was run. Its goal was to compare the means of the negative coverage of Tepco's crisis response between the hierarchical and egalitarian countries. The results showed that the articles from the countries with egalitarian emphasis refer more often to negative evaluations of the crisis response (M=0.0858) in comparison to the countries which emphasize on hierarchical values (M=0.0566), as the articles analyzed from the first ones were less (n=338) than those from the second group (n=831). However, the t-test was also not so significant (0.066).

From the result of these analyses, we can conclude that the hypothesis could be confirmed but with restrictions.

*H5:*In accordance with the hypothesis, it is expected that egalitarian country – in this case only Germany- shows higher compassion in the crisis response strategy which is represented by the coded media coverage. After the analysis was conducted, the result is contrariwise. The country which has the highest result is Japan (6.5 %) followed by India (5 %). While Germany, which is expected to have the highest percentage, only reach 4 %. Consequently, this could imply that the hypothesis is somehow rejected. However, the chi-square result shows insignificance with a value of 0.2.

Table 11. Crosstab between Egalitarianism and Hierarchy on Compassion

	USA	UK	India	Singapore	Japan	Germany
Positive	0 %	4.3 %	4.9 %	5 %	6.5 %	4 %
Neutral	0 %	2.1 %	1.5 %	0 %	9 %	7 %
Negative	0 %	1.6 %	1.5 %	6 %	1.2 %	7 %

In the second test, Japan reached the highest percentage of neutral response 9 %. However this test was also insignificant, since the chi-square value is 0.3. What is left to answer the hypothesis is then the last test. Nevertheless, once again the same supporting statement was interpreted in this result, which opposed the hypothesis. From all the country samples, Germany is statistically rated as the country with the highest negative crisis response (7 %). Consequently italso implies that compassion was not shown in Germany's media coverage, especiallysince the rate of compassion shown was also remarkably low. Nevertheless, it is essential to also note that the test shows no significance, since the chi-square value only reached 0.7 which also show a preceded limit of error possibility.

Despite the fact that the test might not be reliable, due to (a) insignificant chi-square for all three tests and (b) very low amount of valid data, perhaps it is still possible to relate the result with Ross' FAE. While the hypothesis expects Germany to hold the highest percentage of compassion (positive), and India the lowest (means highest on negative), the result shows contrariwise. India has the second highest compassion shown (4.9 %). Meanwhile Germany, though not significantly different (4 %) is the second lowest to show compassion, and it also shows the worst (negative) compassion (7 %). Now according to Ross (Ross, 1977) it is a Western country which shows the tendency to FAE, which is the tendency to underestimate the role of external factors. This also relates to the result, which is also supported by Choi et al. (Choi et al., 1999) who stated that Asian countries (especially East Asians) are less likely to show correspondence bias. On the other hand, focusing on the internal cause, which in this case is Tepco, consequently also means that the result of news framing will most likely expose less compassion ofTepco toward the stakeholder due to a higher probability of criticism toward the companyitself.

Therefore, there is quite a probability if the more valid coding result is to be gathered, that the hypothesis will be at least partially rejected with certain restrictions. The reason is, though the T-test is also insignificant (0.6) with the countries grouped in two (the neutral grouped with negative), the result has no significant difference with the test of individual countries ungrouped. Nevertheless, the result shows that compassion is rather shown in hierarchical countries (M = 0.49) rather than egalitarian (M=0.39). Overall, Asian country samples show higher compassion toward the Western countries, and only Singapore shows a high percentage of low compassion (negative crisis response), though it also shows almost the same percentage of compassion.

H6: (Schwartz, 1999) distinguished Harmony from Mastery as the first one refers to accepting the world as it is and the second one emphasizes the assertiveness for changing the world in order to get ahead. Therefore, it can be assumed that countries with harmonious emphasis, where groups and individuals tend to fit harmoniously into the natural and social world and to think environmentally friendly (Schwartz, 1999) will be more likely to refer to the risks of nuclear energy than to benefits. On the opposite, the master countries, seen aiming at keeping the control over the environment and changing the world (Schwartz, 1999), are supposed to emphasize more on the beneficial side of the nuclear energy. Therefore, the coverage from Germany (Harmony) is expected to refer more to the risks and less the benefits, connected with the nuclear energy compared to UK, USA, India, Japan and Singapore(Mastery).

For the aim of the analysis the countries were united in 2 groups – harmonious and master countries, as the first one embraced 151 and the second one 1018 articles, respectively 12.9 % and 87.1 % of the wholesample.

The codebook distinguishes between 5 types of risks of nuclear power – general risks, cancer, birth deformities, reduction of life expectancy and terrorist acts, and 6 types of benefits – general benefits, reduction in air pollution, electricity price stability, reduced reliance on energy imports, diversified energy supply, and jobs opportunities. For the assessment of risk and benefits associated with the Nuclear power – two variables i.e Nuclear Risks and Nuclear Benefits were formed. As there are 5 indicated risks and 6 benefits, corresponding to the nuclear power, these two variables take values form 0 to 5 and from 0 to 6, as 0 shows that none of the abovementioned variables was mentioned and 5 (6) – that they all were. It was assumed that a particular country refers to risks (or benefits) of nuclear energy when in the articles one or more than one risk (benefit) were mentioned (e.g. 1, 2, 3, 4, or 5). Therefore, new groups were formed – "no nuclear risks", respectively "no nuclear benefits" and "nuclear risks", respectively "nuclear benefits". The first groups included the cases when no risks (benefits) were pointed out and the second one – when one or more than one risks (benefits) of the nuclear power were mentioned.

The result of running a crosstab with the variables Harmonious/Master Countries and Nuclear Risks showed that most of the analyzed articles did not tend to connect the nuclear power with risks or they didn't comment it at all (87.7 %), as only 12.3 % of them referred to the above-mentioned risks.

10.7 % of the master countries" articles mentioned one or more nuclear risks compared to 23.2 % for the harmonious one – Germany. Drawing a conclusion from these data the expectation that Germany would refer more to the nuclear risks compared to the other countries was confirmed.

The significance index of the Person Chi-square had a value of 0.000 that means that the test is highly significant and indicates that there is a strong relationship between the two analyzed variables. The Likelihood Ration (0.000) and the Linear-by-Linear Association (0.000) showed the same. There were no cells that have expected count less than 5 as the minimum expected count was 18.60. This means a reduction in the test power of the Chi-Square test is not to be expected.

Table 12. Crosstab between Harmonious/Master Countries and Nuclear Risks

	Nuclear Risks		Total
	No nuclear risk	Nuclear risk	
Harmonious Countries	116 (76.8 %)	35 (23.2 %)	151 (100 %)
Master Countries	909 (89.3 %)	109 (10.7 %)	1018 (100 %)
Total	1025 (87.7 %)	144 (12.3 %)	1169 (100 %)

Cramer's V had a low value (0.127) which shows that there is a weak association between the type of country and the referring to the nuclear risks. The coefficient was highly significant (0.000). It was the same by Phi and Contingency Coefficient.

The following running of crosstab with the variables Harmonious/Master Countries and Nuclear Benefits showed similarly that most of the analyzed articles did not refer to the benefits of the nuclear power (96.6 %) and only 3.4 % of them referred to the abovementioned benefits.

Looking at the numbers that depict how often the newspapers from the different countries mentioned one or more nuclear benefits, the percentage for the mastery cultures is 3.3 % and for the harmonious one – Germany – 4.0 %. From these data it could be concluded that the expectations are not met, because Germany referred to the benefits of nuclear energy slightly but still more than the other countries.

Table 13. Crosstab between Harmonious/Master Countries and Nuclear Benefits

	Nuclear Benefits		Total
	No nuclear benefit	Nuclear benefit	
Harmonious Countries	145 (96.0 %)	6 (4.0 %)	151 (100 %)
Master Countries	984 (96.7 %)	34 (3.3 %)	1018 (100 %)
Total	1129 (96.6 %)	40 (3.4 %)	1169 (100 %)

However, Person Chi-Square showed that the test is not significant (0.689). There were no cells that have expected count less than 5 as the minimum expected count was 5.17 which mean that a reduction in the power of the Chi-Square test is not to be expected.

Cramer's V had a low value (0.012) which shows that there is a weak association between the type of country and the referring to the nuclear risks. The Phi and the Contingency Coefficient also supported this conclusion. However, they all were not significant.

In order clearer result to be received, an independent t-test was run aiming at making a comparison of the means of the nuclear risks and benefits between the countries with emphasis on Harmony and those with emphasis on Mastery. The results showed that the articles from the harmonious country refer more often to the risk of the nuclear power (M=0.2318) compared to the mastery countries (M=0.1071), as the articles analyzed from the first one were less (n=151) than those from the second group (n=1018). Moreover, it also showed that Germany refers slightly more to the benefits of nuclear energy (M=0.0397) than the mastery cultures (M=0.0334) with the same observation about the numbers of articles. The t-test was highly significant for the first part of the analysis (0.000) but not significant for the second part (0.708).

Table 14. T-test between Harmonious/Master Countries and Nuclear Risks and Nuclear Benefits

	Countries	N	Mean	Std. Deviation	St. Error Mean
Nuclear	Harmonious	151	0.2348	0.28048	0.01526
Risks	Master	1018	0.1071	0.23114	0.00802

Nuclear	Harmonious	151	0.0397	0.19599	0.01595
Benefits	Master	1018	0.0334	0.17976	0.00563

As a result of these analyses we can conclude that only the first part of the hypothesis could be confirmed. There was no proof found that harmonious countries are less likely to refer to the benefits of nuclear energy than master countries.

H7: As far as crisis severity is concerned, the variables of the study that operationalize this question are the different effects of the nuclear disaster that were recorded in the newspaper articles (economic, political, health/psychological and environmental effects). Since the hypothesis refers to the dependent variable not only as of simple mention of the crisis, but to the high or low severity, the effects were recorded according to their reference as actual and potential or under the claim of no effect in the press. In their primary form in the codebook, the data was arranged in a nominal scale so it was not ordered but rather allocated todistinct categories. As it has been mentioned in the codebook description section, the values that the effects variables can take range as 0=no effects mentioned, 1=actual effects mentioned, 2=potential effects mentioned, 3=both actual and potential effects measured and 4= claim of no effect.

In order to have a measurable scale of the climax of crisis severity mentioned, the four effects variables were rearranged to an ordinal, almost interval scale (data whose differences between values can be quantified in absolute terms). The new scale had the extreme values of no mention and of actual effect mention, while the values in between range from one extreme to another: 0=no effects mentioned, 1=claim of no effect, 2=potential effects mentioned, 3=both actual and potential effects measured, in which also the value of „actual effects mentioned" was merged. The logic behind this scale is that in any case that an actual effect was mentioned, the crisis severity is considered as high. Afterward, the dependent variable was created by an index of the combination of the four different variables. The index was built by counting how many times an actual effect was mentioned, with possible values from 0 (no actual effect was mentioned) to 4 (four times actual effects were mentioned). Finally, this variable was recoded to the final variable where 1=no mention of actual effect and 2=actual effects were mentioned, so if an actual effect was mentioned, the crisis severity was considered high.

Then, a cross-tabs analysis was conducted, using the modified country and the new variable of actual effects mentioned. Although the hypothesis was verified at the cross-tabs, where the country with emphasis on Harmony was slightly more likely to refer to actual effects (60.3 %) and therefore to high crisis severity, than countries with emphasis on Mastery (59.5 %), the Chi-square value was 0.929, which was not significant at all (> 0.05) and the Lambda had a value of 0, which means that one variable in no way predicts the other.The Phihada negative value of -0.05, indicating a weak negative relationship between the variables, while Cramer's V and the contingency coefficient had the values of 0.05, which indicate a weak relationship between the two variables (0.31 – 0.7).

Table 15. Cultural emphasis and reference of actual effects: Effects of cultural emphasis on the frequency of actual effects mentioned in the press (dependent variable)

N=1165	No effects were mentioned	Actual effects were mentioned
Harmony	60 (39, 7%)	91 (60, 3%)
Mastery	412 (40, 5%)	606 (59, 5%)
Chi² = 0.929		

The T-Test demonstrated that countries with a cultural emphasis on Harmony are slightly more likely to refer to high crisis severity (M= 1.60) than countries with cultural emphasis on Mastery (M= 1.59).

Table 16. Mean of actual effects reference: Harmonic and Master countries

	Actual effects mentioned			
	N	Mean	Levene's Test	T-Test for Mean Equality
Harmony	151	1.6026	0.724 > 0.05	t = 0.172
Master	1018	1.5953		p= 0.863 > 0.05

The current hypothesis also allows an alternative way of operationalization, by using the variables of the regions affected by the crisis effects. For all effects in the codebookthe scale of localization ranged as follows: 0=no region mentioned, 1=local level mentioned, 2=regional level mentioned, 3=international level mentioned, 4=global level mentioned, 5=ambiguous but beyond the local level. The idea behind using these variables to build an index and use it as a dependent variable is that if the nuclear crisis is mentioned beyond the local level, then its severity is high because it exceeds domestic limits. Therefore, an index was built out of the four regional variables (region affected economically, politically, health wise/ psychologically and environmentally), where the values of 2, 3, 4 and 5 were combined as one, in order to indicate a beyond local level reference. Then, it was counted how many times a crisis reference beyond the local level was made. Again, the logic was that 0 equals no reference of beyond the local level, while 4 was the maximum times in the scale of references. The final dependent variable was recoded in a way where 1would equal no reference, so it was labeled as "low mention of severity" and 2 equaled all mentions of beyond local references, therefore labeled "high mention ofseverity". Afterward, a cross-tabulation analysis was conducted, where hypothesis was confirmed, as Harmony countries were more likely to mention more frequently beyond local regions affected by the crisis (29.1 %) than Mastery countries (27.4 %).

Table 17. Cultural emphasis and reference of beyond local region affected by crisis: Effects of cultural emphasis on the frequency of beyond local level region affected by nuclear crisis (dependent variable)

N=1165	Low severity mentioned	High severity mentioned
Harmony	107 (70.9%)	44 (29.1%)
Mastery	767 (75.3%)	251 (27.4%)
Chi² = 0.269		

Yet, again the Chi-square had a value of 0.269 > 0.05, so it was not significant. In addition, the Lambda was 0 and the negative -0.35 Phi and 0.35 Cramer's V and contingency coefficient values indicate a moderate relationship between the variables. To verify this result, another independent T-Test was conducted in order to compare the means of high crisis severity reference between the two groups of countries.

The result showed a slight difference in the means, which supported the hypothesis (Harmony Mean= 1.2914 > Mastery Mean= 1.2466) and Leven's Test was significant (0.027 < 0.05) However, the T-test for equality of means did not get significant (p= 0.258 > 0.05).

Therefore, the hypothesis that interprets crisis severity as localization, where Harmony countries are more likely to mention more frequently beyond local regions affected by the crisis than Mastery countries can only be confirmed under certain limitations.

Table 18. Mean of beyond local region reference: Harmonic and Master Countries

	Beyond local level region affected mention			
	N	Mean	Levene's Test	T-Test for Mean Equality
Harmony	151	1.2914	0.027 < 0.05	t = 1.183
Master	1018	1.2466		p= 0.258 > 0.05

5. Conclusion

This research is undertaken to scrutinize the difference in how each respective country undertakes the media coverage of Fukushima crisis. The basic assumption built afterward is then, how the media coverage in each country depends on several factors, especially the media system and each factor that influences it. However, it is Schwartz's cultural values that had been taken into incorporation instead. Therefore, regarding that (a) the amount of valid data that qualifies to be analyzed is very low and no matter how the analysis result turns out, (b) the power of statistical manipulation might play a role, therefore it is very essential to scrutinize the delicate findings carefully.

Second, as discussed in one of the findings, Schwartz's cultural values may not be built on the same basis. Hierarchy and egalitarianism are compared based on the nature of relationship, mastery and harmony are compared based on self-assertion of the world, while autonomy and embeddedness are compared based on power differences. Though these factors might be a valid factor to differentiate the characteristics of country types, however this might not be the case. The reason is these factors may not be the key factor that has influence toward the media system, nor may it be representative toward the difference in style of the media coverage.

One of the main element of cross-cultural research is representativeness, and not only reliability and validity. Nevertheless, it is the result of the research that may undertake the role of verifying all these matters (Brislin, 1976).

From the eight hypotheses that have been tested, three are confirmed with restrictions, two partially confirmed though also with restrictions, and three rejected, in which one of them under restriction. The first hypothesis is partially confirmed on how embedded countries are more likely having the tendency to attribute to natural causes instead of internal cause (Tepco).

As a matter of fact, according to Schwartz's cultural map (1999) Japan was the source of the issue, thus considered an important part of this research and has a strong tendency of autonomousculture.

Therefore, there are two contradictory statements in this matter (a) According to Choi et al (Choi et al., 1999) Japan as an East Asian country is supposed to show less correspondence bias, which mediates causal attributions (Kelley, 1967). This means Japan, while assessing behavior, is not supposed to underestimate external causes, which is in this case natural causes. Contrariwise, (b) Japan has a strong tendency of autonomy, which tends to attribute more to internal causes. Schwartz's cultural map (Schwartz, 1999) Meanwhile (c) the difference in using the term "autonomy" might also cause undetectable influence toward the result of the analysis. Originally, Schwartz has two types of autonomy: intellectual autonomy, which is explained as "Pursuit of ideas, intellectual directions and rights" and effective autonomy, which is defined as "Independent pursuit of affectively positive experience" (Gutterman, 2005). Furthermore, there is a possibility that Schwartz, during his research, groups Japan as "Confucianism-influenced" countries in which intellectual autonomy was stated as the area that has the largest difference. Consequently, since this statement is not explained further, while on the other hand this research used autonomy in a broader sense, once again, perhaps what could be taken as a more reliable state is the result of the research itself. One possible explanation that could be given is, this group of "Confucianism-influenced" countries has high emphasis on hierarchy and embeddedness,while tends to highly reject egalitarianism. Nonetheless, intellectual autonomy is also stated as the biggest difference within the group (Gutterman, 2005). Therefore, despite the fact that the hypothesis is only partially confirmed, in the end this statement supports the findings, in which Japan also might be an exceptional case since as an autonomy-based culture (along with US, Germany and UK), the test

analysis does not confirm their tendency of attribution to internalcauses.

Despite all the contradiction in the results, however it is still essential to note that the lacking amount of valid data is perhaps one of the factors, whether it is major or minor. Secondly, Schwartz's cultural values are not solely the factor that could explain the influence within the media system, regarding the difference of media coverage in each country or cultures. However, the results could function as a further notice that could be noted on which part of this research could be scrutinized further in future researches.

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